UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,474	02/07/2001	G. Rodney Nelson	2479.1067-001	4700

21005 7590 08/20/2004

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 VIRGINIA ROAD
P.O. BOX 9133
CONCORD, MA 01742-9133

EXAMINER	
NGUYEN, ALAN V	

ART UNIT	PAPER NUMBER
2662	7

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,474	NELSON ET AL.	
	Examiner	Art Unit	
	Alan Nguyen	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 07 February 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5 and 6.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

On line 16, the phrase "a field unit" should read -- the field unit --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15 and 17-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Struhsaker et al (US 6,512,751) hereafter Struhsaker.

Regarding **claim 1** Struhsaker discloses a method for supporting wireless communications:

Struhsaker discloses allocating a first channel to support message transmissions from a base station to multiple field units **(forward link, see figure 8; Here the forward channel is a combination of all the physical channels where the base station can convey information to the subscriber such as the traffic channel, pilot channel, and control channel)**;

Struhsaker discloses allocating a second channel to support message transmissions from the field units to the base station **(reverse link, see figure 8; Here the reverse channel is a combination of all the physical channels where the subscriber can convey information to the base station such as the traffic channel, acquisition channel, and control channel)**;

Struhsaker discloses assigning time slots in the first and second channel for message transmissions between the base station and field units **(subscriber communicates to the base station through the traffic, pilot and control channels. Time slots must be assigned in order to transmit information between the subscriber and base station)**; and

Struhsaker discloses maintaining synchronization between a field unit and the base station by analyzing a message received in a time slot **(subscriber switches to the pilot channel and transmits to the base station)** and adjusting timing of a field unit by transmitting a feedback message to a corresponding field unit **(base station sends the subscriber a coarse offset message to the subscriber to synchronize with the base station; for example see col 21 lines 13-42)**.

Regarding **claim 2** Struhsaker discloses partitioning the first channel into active and standby time slots, wherein active time slots correspond with field units transmitting a data payload on a reverse link traffic channel **(Active state denotes traffic; If the subscriber status is active, the call is rejected. Otherwise, a channel is removed from a pool of idle channels; col 21 lines 59-67 and col 22, lines 1-24)**.

Regarding **claim 3** Struhsaker discloses detecting a request by a field unit to transmit a data payload from the field unit to the base station; assigning the requesting field unit an active slot in the first channel; and allocating traffic channels to support a data transfer between the requesting field unit and the base station **(Active state denotes traffic; If the subscriber status is active, the call is rejected. Otherwise, a channel is removed from a pool of idle channels; col 21 lines 59-67 and col 22, lines 1-24)**.

Regarding **claim 4** Struhsaker discloses reassigning a field unit a standby time slot in the first channel after completion of the data transfer **(When data transfer is completed the subscriber returns to control channel with a standby status; col 20 lines 54-62 and col 22 lines 15-24)**.

Regarding **claims 5-7** Struhsaker discloses maintaining synchronization between a field unit and the base station by analyzing at least one message received on a traffic channel and adjusting timing of the field unit based upon a feedback message to the field unit to advance or retard timing **(col 14 lines 63-67 and col 15 lines 1-61 discloses the messages, requests, and commands that are sent through certain fields from the subscriber to the base station through the reverse link traffic channel, shown in figure 8. For example, values in the RO field are sent from the subscriber to the base station for analysis and feedback on timing adjustments for synchronization. The RO field is used as a marker; see col 21 lines 13-25)**.

Regarding **claim 8** Struhsaker discloses dividing the first and second channels into a predetermined number of time slots to support periodic communications between the base station and each of multiple field units **(the embodiment discloses the use of fixed-sized time slots which indicate a preset number a time slots; col 9 lines 21-29 and col 11 lines 15-57)**.

Regarding **claim 9** Struhsaker discloses detecting a request by a field unit to establish a link with the base station; analyzing the request to determine an initial timing adjustment to be made at the field unit for synchronization; and transmitting timing adjustment information to the field unit for synchronizing the field unit with the base station **(Col 21 lines 1-40 discloses the steps of the subscriber to synchronize with the base station. The subscriber accesses the base station pilot channel to synchronous the subscriber receiver, and where the base station receives information from the subscriber transmitter and uses it to create a coarse offset message for the subscriber to synchronize with the base station)**.

Regarding **claim 10** Struhsaker discloses where the timing adjustment information is transmitted to a field unit over a paging channel **(the pilot channel is used by the base station to transmit information to the subscribers to achieve synchronization; col 17 lines 15-28)**.

Regarding **claim 11** Struhsaker discloses where the timing adjustment information is a multi-bit value transmitted to a field unit notifying the requesting field unit of an amount to advance or retard timing **(The base station transmits a coarse offset message on the pilot channel to the subscriber to adjust to the correct alignment position; col 20 lines 40-45 and col 21 lines 23-35)**.

Regarding **claim 12** Struhsaker discloses where field units are notified of time slot assignments based upon messages over a forward link paging channel **The base station transmits coarse offset on the forward pilot channel (fig. 8) and returns receiver correlators to the system alignment position; col 21 lines 23-35)**.

Regarding **claim 13** Struhsaker discloses where the base station analyzes a field unit message and determines whether to advance or retard timing of the field unit **(at the base station RX correlators are offset from the transmitter frame by the median time delay. It then uses this information to send the coarse offset; col 21 lines 15-30)**.

Regarding **claims 14 and 15** Struhsaker discloses where time slots are assigned in the first and second channel based on a predetermined offset **(The base station and the subscriber initiates differential phase and power adjustments until a complete alignment is filled. This is a result of the coarse offset message sent to the subscriber, which is determined by the base station; col 21 lines 22-40)**.

Regarding **claims 17-19** Struhsaker discloses assigning short PN codes for use by a field unit, a short PN code being transmitted by the field unit in an assigned time slot to provide an indication to the base station **(col 14 lines 63-67 and col 15 lines 1-61 discloses the messages, requests, and commands that are sent through certain fields from the subscriber to the base station through the reverse link. For example, values in the RO field are sent from the subscriber to the base station for analysis and feedback on timing adjustments for synchronization. D and C fields denotes messaging relating to system control such as call control and data access requests. Figure 8 explains that each of these channels are transmitted as 80 symbols, which is 5 long PN code repetitions; see col 21 lines 13-25)**.

Regarding **claim 20** Struhsaker discloses a method for synchronizing wireless communications between a base station and a field unit:

Struhsaker discloses assigning time slots of a forward link channel to each of a plurality of field units in which a base station transmits messages, each field unit determining messages directed to the field unit based upon receipt of a message in a particular time slot **(the user is provided with a fixed time slot in which the user is allowed access to the data channel; col 8 lines 50-55; Col 21 lines 1-42 also discloses that complete alignment is achieved between the base station and subscriber)**;

Struhsaker discloses assigning time slots in a reverse link channel in which the field units transmit messages to the base station, the base station identifying from which field unit transmitted a message based upon reception in a particular time slot **(the user is provided with a fixed time slot in which the user is allowed access to the data channel; col 8 lines 50-55; Col 21 lines 1-42 also discloses that complete alignment is achieved between the base station and subscriber)**;

Struhsaker discloses adjusting message transmissions from each field unit such that messages transmitted from the plurality of field units arrive at the base station in a corresponding time slot of the reverse link channel **(base station sends the subscriber a coarse offset message to the subscriber to synchronize with the base station; for example see col 21 lines 13-42)**.

Regarding **claim 21** Struhsaker discloses analyzing messages received by field units and transmitting a message on the forward link to a corresponding field unit to adjust timing on the reverse link channel **(at the base station RX correlators are offset from the transmitter frame by the median time delay. It then uses this information to send the coarse offset; col 21 lines 15-30)**.

Regarding **claims 22-24** Struhsaker discloses where the message to adjust timing in the reverse link channel for a particular field unit includes an indication whether to advance or retard timing **(The base station transmits a coarse offset message on**

the pilot channel to the subscriber to adjust to the correct alignment position; col 20 lines 40-45 and col 21 lines 23-35).

Regarding **claims 25-27 and 29** Struhsaker discloses a method for supporting wireless communications between a base station and a plurality of field units:

Struhsaker discloses allocating a first channel to support message transmissions from the base station to the field units **(forward link, see figure 8; Here the forward channel is a combination of all the physical channels where the base station can convey information to the subscriber such as the traffic channel, pilot channel, and control channel)**;

Struhsaker discloses allocating a second channel to support message transmissions from the field units to the base station **(reverse link, see figure 8; Here the reverse channel is a combination of all the physical channels where the subscriber can convey information to the base station such as the traffic channel, acquisition channel, and control channel)**;

Struhsaker discloses assigning a set of PN codes for use by a field unit, each code corresponding to a predefined function or request, a code being transmitted by the field unit on the second channel to provide an indication to the base station **(col 14 lines 63-67 and col 15 lines 1-61 discloses the messages, requests, and commands that are sent through certain fields from the subscriber to the base station through the reverse link. For example, values in the RO field are sent from the subscriber to the base station for analysis and feedback on timing**

adjustments for synchronization. D and C fields denotes messaging relating to system control such as call control and data access requests. Figure 8 explains that each of these channels are transmitted as 80 symbols, which is 5 long PN code repetitions; see col 21 lines 13-25).

Regarding **claim 28** Struhsaker discloses assigning time slots in the first and second channel for message transmissions between the base station and each field unit **(subscriber communicates to the base station through the traffic, pilot and control channels. Time slots must be assigned in order to transmit information between the subscriber and base station).**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Struhsaker in view of Park et al (US 6,396,823) hereafter Park.

Regarding **claim 16** Struhsaker discloses a method message transmission through a first channel **(figure 8 shows a forward link channel used to transmit data from the base station to the subscriber).**

Struhsaker, however, fails to disclose where the transmission is encoded using BCH.

Park discloses a base station transceiver in a CDMA system that utilizes BCH encoding **(the invention provides a base station for scrambling Bose-Chaudhuri-Hocquenghem BCH encoded data; see col 3 lines 22-30).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Struhsaker's base station to transmit BCH encoded data in the forward link direction, as taught by Park. The motivation is a fast, accurate, and efficient system as desired by Struhsaker (column 3 lines 55-67) since it is known in the art that BCH encoding is an accurate and efficient method that enables the subscriber on the receiving end to detect and correct errors.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to synchronization and channel allocation in CDMA systems:

US Patent (6,735,188) to Becker et al

US Patent (6,724,740) to Choi et al

US Patent (6,574,211) to Padovani et al

US Patent (5,726,981) to Ylitervo et al

US Patent (6,353,645) to Solve et al

US Patent (5,684,794) to Lopez et al

US Patent (6,532,226) to Lehtinen et al

US Patent (6,647,000) to Persson et al

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN
August 16, 2004

JOHN PEZZLO
PRIMARY EXAMINER